AMENDMENTS TO THE CLAIMS

Applicant submits below a complete listing of the current claims, including marked-up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims replaces all prior versions, and listings, of claims in the application:

1-21. (Canceled)

22. (Currently amended) A system for classifying material, comprising:

a classification module to receive x-ray fluorescence information representing x-rays fluoresced from the material, to receive optical emissions information representing optical emissions emitted from the material, and to classify the material based on at least one of the x-ray fluorescence information and the optical emissions information, the classifying including reducing the number of potential classifications by analyzing only a first one of two types of emissions: the detected x-rays or the detected optical emissions; and selecting one of the reduced number of classifications by analyzing only a second one of the two types of emissions that was not analyzed in reducing the number of potential classifications.

23. (Previously presented) The system of claim 22, further comprising:

an x-ray detector to detect the x-rays fluoresced from the material;

an optical emissions collector to detect the optical emissions emitted from the material.

24. (Previously presented) A system for classifying a piece of material, wherein a number of potential classifications are available, comprising:

one or more inputs to receive x-ray fluorescence information representing x-rays fluoresced from the material and optical emissions information representing optical emissions emitted from the material; and

means for classifying the material based on the x-ray fluorescence information and the

optical emissions information including means for reducing the number of potential classifications

by analyzing only a first one of two types of emissions: the detected x-rays or the detected optical

emissions and means for selecting one of the reduced number of classifications by analyzing only a

second one of the two types of emissions that was not analyzed in reducing the number of potential

classifications.

25. (Previously presented) A computer-readable medium having computer-readable signals stored

thereon that define instructions that, as a result of being executed by a computer, control the

computer to perform a method of classifying material, wherein a number of potential classifications

are available, the method comprising acts of:

     (A)   detecting x-rays fluoresced from the material;

     (B)   detecting optical emissions emitted from a plasma resulting from a vaporization of a

portion of the material; and

     (C)   classifying the material based on the detected x-rays and the detected optical

emissions, including acts of

          (1)   reducing the number of potential classifications by analyzing only a first one

    of two types of emissions: the detected x-rays or the detected optical emissions; and

          (2)   selecting one of the reduced number of classifications by analyzing only a

    second one of the two types of emissions that was not analyzed in the act (C)(1).

46. (Currently amended) A method of classifying material, the method comprising acts of:

     (A)   applying an electrical discharge to vaporize a portion of the material to produce a

plasma;

     (B)   detecting optical emissions emitted from the plasma;

     (C)   detecting x-rays fluoresced from the material; and

     (D)   classifying the material based on the detected x-rays and/or the detected optical

emissions;

~~The method claim 45,~~ wherein a number of potential classifications are available, wherein the act (D) comprises[[:]]

  (1) reducing the number of potential classifications by analyzing only a first one of two types of emissions: the detected x-rays or the desired detected optical emissions; and

  (2) selecting one of the reduced number of classifications by analyzing only a second one of the two types of emission that was not analyzed in the act (D)(1).

  47-61. (Canceled)